Teaching Suggestions: Geology Field Journal

Background

All good field naturalists, geologists, and biologists keep a journal of what they see and learn from every field experience.

Keeping a journal helps students remember their experiences and helps them to make connections with nature. We tend to direct students toward particular conclusions, so don't forget to allow for their own creativity. Drawings, stories and poems are great journal entries that can be completed any time.

The Field Journal section contain interactive questions about Yosemite's geology. Students can create their own field journal book, and the questions are designed to prompt them to think about the park's geology. They can enter answers to the questions or draw pictures in their Field Journals.

Add your own journal entries or use those on this web site. If you are visiting the park, you can design a post-site test using the journal questions once you get back to the classroom to assess your students' learning. If you are not visiting the park, you can use the Activities section as a quiz, although student scores will not be recorded.

Materials

Recycled paper or paper bags cut into journal size pages, heavy card stock for front and back cover, hole punch, stapler, roll of heavy twine or string, pencils, paints, and crayons or felt pens. Use printouts of the geology graphics in this web site, photographs of Yosemite, and student drawings of well-known Yosemite geological formations.

Time: 45 minutes

Activity

This is an easy and fun activity, and can be part of a class art project. Allow the students to design their own journal covers and assemble the materials with staples or twine ties. Have the students come up with their own geology drawings related to Yosemite for their journals. They could draw Half Dome, North Dome, Three Brothers, El Capitan, and some other well-known geological formations in Yosemite. The more creative, the more ownership! They could paste Yosemite photographs into their journals or use printouts of the geology graphics in this web site. Teachers can design their own journal questions and include as many from this site as desired.

Direct students to this section of the web site and have them write answers to questions, notes, or draw pictures in their journals.

Field Journal Questions

1) Is it O.K. to keep rocks and other natural objects found in National Parks? Why or why not?

2) What kind of rock makes up 95% of the rock in Yosemite National Park?

3) If a rock has large amounts of lichen, moss, and other plants growing on it, what does that tell you about the rock?

4) What happens when water seeps into cracks in rocks and freezes?

5) Feldspar is a mineral in granite. What are the other three?

6) The four minerals in granite all have different shaped crystals. Copy the pictures of all four crystals and label them with the correct mineral names.

7) Look at the U-shaped valley. What formed this valley?

8) Look at the V-shaped valley. What formed this valley?

9) Draw a comparison picture of a new rockslide and an old rockslide side by side. List at least three things that can cause rocks to fall.

10) Draw a picture of a really cool landform you like in Yosemite, like Half Dome or El Capitan.

11) Describe each of the four minerals in granite. List the colors of each and any other characteristics that might help to identify them.

12) Label the terminal and lateral moraines in this picture.

Answers to Field Journal Questions

1) No. Everything is protected in National Parks like Yosemite. Natural objects decompose and return their nutrients back to the soil to feed plants. Other people wouldn't have a chance to see them.

2) Granite or granitic rock.

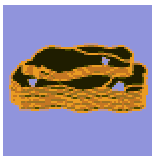
3) The rock has been in the same spot for a long time.

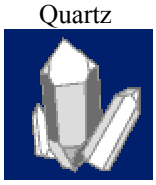
4) The water expands and forces the rock apart where it is weak.

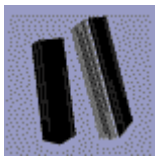
5) Biotite Mica, Quartz, Hornblende.

6) See pictures below.

Feldspar 

Biotite Mica 

Quartz 

Hornblende 

7) Glaciers or glacier.

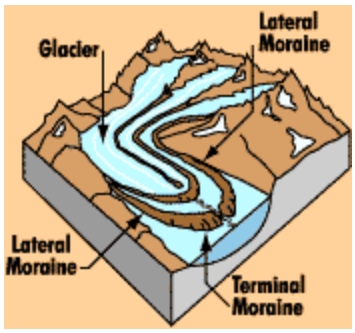
8) Rivers or river.

9) In the comparison picture the new rockslide will have little plant growth and the old one will have a lot (for example: lichen on the rocks, full-grown trees growing between the talus, etc.). Answers: Plant roots penetrating rocks, frost wedging, gravity.

10) Drawing of any Yosemite landmark.

11) Feldspar — white to light pink to rose in color; forms blocky-shaped crystals.
Quartz — forms six-sided crystal and can be opaque-white to clear with a grayish tint.
Biotite Mica — brown to black mineral with thin, layered plates that easily flake and can be hexagonal.
Hornblende — dark green to almost black; forms elongated rod-shaped crystals.

12) See picture below.


Glacier
Lateral Moraine
Lateral Moraine
Terminal Moraine